RESEARCH PROBLEM STATEMENT #TS-501

I – Problem Title
Countermeasures to Reduce or Eliminate Headlight Glare and Gawking (2004SAF.1)

II – Research Problem Statement
Metropolitan Districts continuously receive complaints regarding headlight glare and occasionally gawking. However, for the majority of urban freeway corridors, the only one option available to mitigate the negative affects of glare on safety, mobility, and gawking at collision sites is, concrete glare screens. Concrete glare screens are expensive and only partially effective due to the fact that stopping sight distance requirements often pose a restriction on the use of glare screen where it is needed most – at horizontal curves. Non-concrete glare screens are no longer installed and have been removed from many freeway corridors. This is mainly because of the high level of maintenance that is required which impacts safety and mobility. No other alternatives are available for glare screens. More tools are needed to address the safety concerns indicated above.

III – Objective
Other transportation agencies around the country or world may have successfully developed and/or deployed new glare/gawk reduction devices, systems or strategies. Since we have only one strategy, it would be extremely valuable to comprehensively search and investigate practices that could be cost-effectively employed on California highways. If our search fails to identify any devices or strategies that will meet the identified need (including the need to require minimal maintenance effort), then our objective would shift to the development of new strategies, devices or approaches to address the need.

This may be a multi-phase research proposal. Phase I: Literature search, consultation with FHWA and/or AASHTO officials, and a compilation of findings. Phase II (if necessary): may entail product development and/or applied research (e.g., engineering concepts, such as the use of mainline lighting through horizontal curves). Safety and mobility benefits are anticipated after implementation of products developed under Phase II, and can be measured through 'before-after' safety evaluations.

IV – Background
Non-concrete glare screens have been removed from many freeway corridors and are no longer installed, primarily because of the level of maintenance required and the impact of this maintenance activity on mobility and safety. According to current policy: Glare screen should be installed (in narrow medians) where engineering evaluations show that the glare screen would be of overall benefit to the motorist considering the cost and other impacts of the glare screen. Since many freeways meet (or will meet) the width criteria for glare screen, there are many potential applications, however, it is difficult to demonstrate a level of benefit high enough to justify the high initial cost of concrete glare screen. The issue should be re-visited in light of our "aging population" and the increased affect of glare as perceived by older drivers. The amount of delay that is

attributed to non-recurrent events (such as collisions) is significant. However, it is not known how much is attributed to gawking.

V – Statement of Urgency and Benefits

This proposal is consistent with the Department's strategic focus on safety and mobility (especially in the most heavily congested areas). There is documented concern regarding the affect of glare on older drivers. There is also a concern for the safety of highway maintenance crews that work adjacent to traffic lanes.

In 2001, there were 1544 fatal collisions on California state highways. If the implementation of products developed under Phase II results in a 1% reduction in fatal collisions involving glare, older drivers, or highway maintenance workers, the savings benefit would be about $59,200,000.

VI –Related Research

Do not know of any, however, it is likely that much research has been conducted.

VII – Deployment Potential

The outcome (products and/or strategies) of this effort could be applied in numerous freeway corridors in both metropolitan areas and smaller urban areas of the State and throughout the U.S.